Terma
Airborne Systems

Terma
Airborne Systems

Terma has gained universal recognition in the industry for its contributions to advanced aerospace technology, and Terma's dynamic participation in international projects like the F-16 secures access to new ground-breaking technological advances.

Terma provides integration of defensive aids systems to sustain pilots' comprehensive battlefield overview. Working closely with customers, Terma's staff of engineers has gained profound experience in tailoring defensive systems.

Terma's core aerospace segments comprise Electronic Warfare and Intelligence, Surveillance and Reconnaissance Systems. Terma offers production of mission-critical products at own certified plants. Furthermore, Terma provides service and maintenance.

Terma Airborne Systems has long been an acclaimed provider of aerostructures to military customers, including many of the world's leading airframe manufacturers, systems suppliers, and users.

New R&D projects within systems integration and Pilot Vehicle Interface mark a breakthrough for Terma as provider of EW and reconnaissance systems, while also enabling Terma to advance into new areas, including 3-D audio warning/active noise reduction, and other systems for military and civil aerospace markets.

Mission Statement

In a complex, dynamic and demanding defence theatre, mission accomplishment and combat survival hinge on the pilot's ability to make correct decisions, and take proper action in response to emerging situations within the combat environment.

This requires his full and undivided situational awareness based on a continuous assessment of all data and information pertaining to his mission.

Building on decades of advanced experience, and drawing on close working relationships with industrial partners and customers all around the world, Terma is dedicated to supporting pilots with leading-edge technologies, aiming at generating combat awareness.

Terma's mission statement is really all this simple: to support pilots in accomplishing their mission, and to see them return safely.

Børge Witthøft,
Senior Vice President,
Terma Airborne Systems

Electronic Warfare

Terma has developed a sophisticated Electronic Warfare Management System to reduce pilot workload and optimize response to threats during combat missions. The system automates the immediate, co-ordinated and efficient use of all on-board EW subsystems without distracting the pilot's focus from completing his flight mission duties.

A good EW Management System's performance depends on the selection of good EW subsystems, including e.g. Radar Warning Receivers and Chaff/Flare Dispensers. But there is more to it than that. Terma EW Systems has specialized in systems integration, providing the customer with maximum flexibility in subsystems selection, and enhancing the overall performance of the individual systems installed.

To achieve this goal, Terma EW Systems has developed optional hardware/software solutions to improve situational awareness, reduce pilot workload, and optimize system performance by sensor fusion and threat adaptive processing. Furthermore, these solutions are designed to control overall cost efficiency.

Co-operating closely with users and subsystem vendors, Terma has produced unique solutions for fast jets, transport aircraft, wide body, and helicopters. As all platforms share the same basic self-protection challenges, we have been able to utilize common hardware and software systems with minor adaptations.

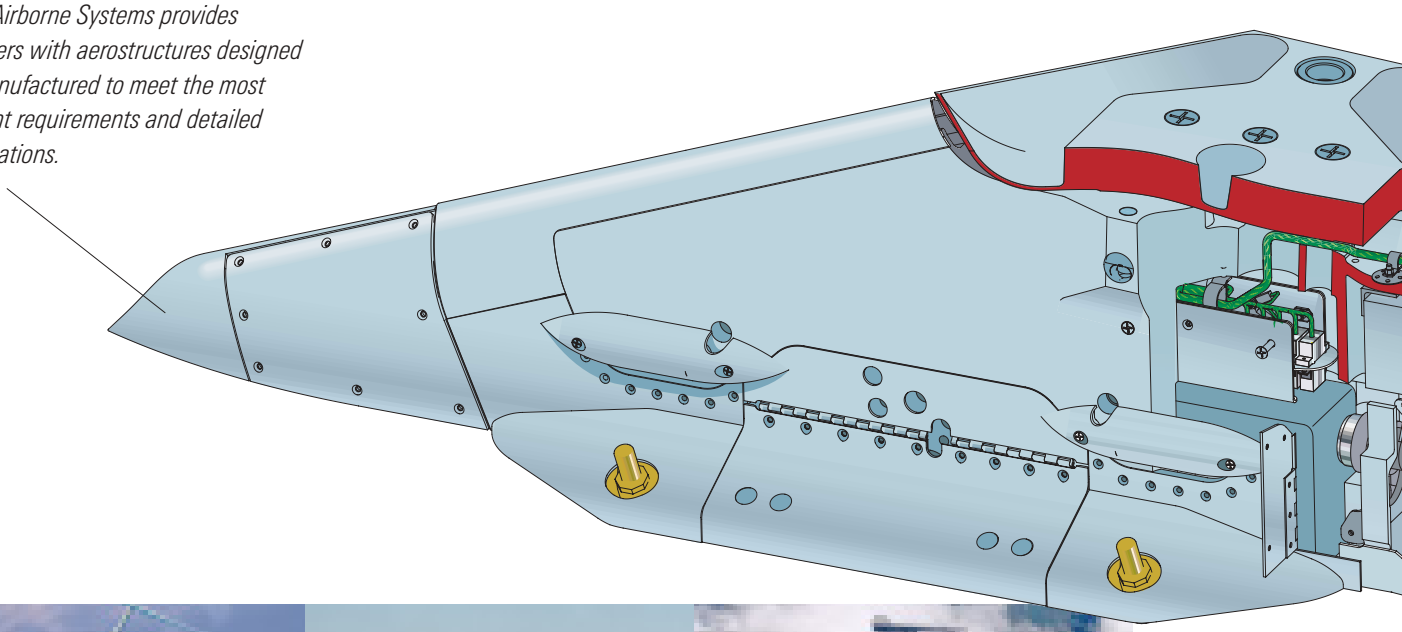
Convincing evidence includes Terma's Electronic Warfare Management System, which controls all on-board EW functions; the Pylon Integrated Dispenser System, which integrates Chaff/Flare Dispensers; and RF jammers in existing wing pylons.

Terma's systems integration capabilities cover the full spectrum from operational analysis to after-sales customer support. From the outset, we join with the user in defining the environment, available subsystems, and requirements for new capabilities. In the concluding stage, we provide documentation, training, support of equipment, spares, and upgrades, to secure operational usefulness of the systems. In between are stages including systems definition, systems development, complex software development, and systems certification.

Electronic Warfare Management Unit - EWMU - for all types of aircraft

Aerostructures

Terma Airborne Systems provides customers with aerostructures designed and manufactured to meet the most stringent requirements and detailed specifications.



Gulfstream business jet, G-IV

A340

F-16 MLU

Terma Airborne Systems provides military and commercial customers with aerostructures designed and manufactured to meet the most stringent requirements and detailed specifications within the aerospace industry.

Military Platforms
For decades, Terma has designed, manufactured and delivered advanced structures to a number of leading airframe manufacturers, systems suppliers, and users. These deliveries include our own-developed structures and solutions used for weapon pylons, and for self-protection and reconnaissance pods.

Terma commands competence to develop helicopter systems, and manufacture structures based on specific helicopter-related requirements.

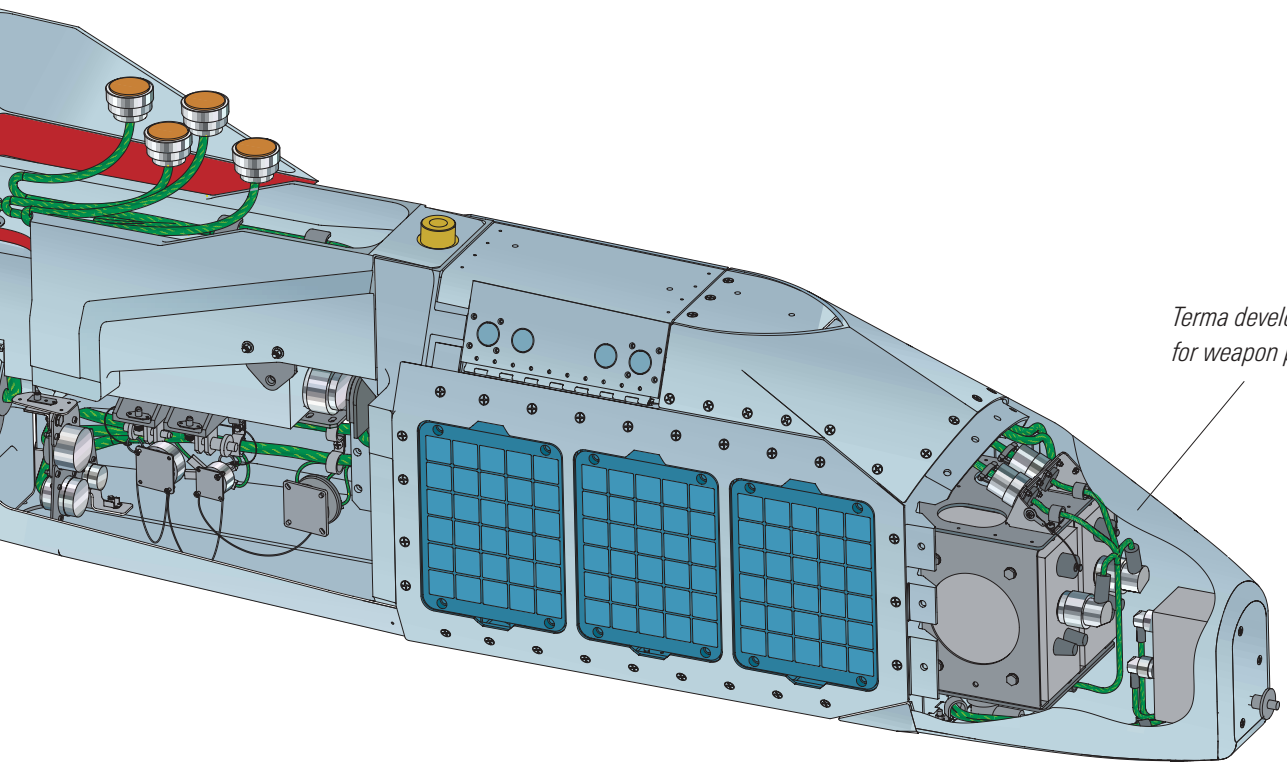
Commercial Aircraft
Terma manufactures primary and secondary structures, such as winglets, for commercial airliners and business jets.

Technologies
Manufacturing of competitive aerostructures requires a firm technological basis, comprising a profound grasp of the most recent techniques, a deep understanding of technology, and continuous R&D efforts.

We are familiar with all machining and sheet metal technologies which, combined with advanced composite technologies, constitute the foundation of our assembly plant. We are highly experienced in design and manufacturing of small and medium-size series of high-quality products and solutions up to even the most critical demands.

Terma Airborne Systems is your prime choice for a flexible provider of systems and products to support you all the way from initial problem identification, via design and production, to completion of final delivery.

Intelligence, Surveillance and Reconnaissance



Terma developed aerostructure for weapon pylon

Experience from recent conflicts has proved the modern tactical reconnaissance system to be the key provider of reliable, accurate and timely information – the very basis for successful tactical and operational decisions by command centres, and in the field.

Terma has developed, certified and manufactured advanced pods and control systems for fully digitized airborne ISR applications, including a new modular reconnaissance pod, a management system, and a matching high-performance ground exploitation system.

The Airborne System

The Modular Reconnaissance Pod (MRP) can accommodate most existing and future sensors. Its unique design absorbs all loads from sensors and auxiliary equipment. As a result of its modular structure, sub-system selection and future upgrades are independent of any specific vendor. The design also facilitates easy maintenance, handling and installation of equipment.
To support Intelligence, Surveillance and Reconnaissance (ISR) operations, Terma has developed a Reconnaissance Management System to integrate and control the Modular Reconnaissance Pod and the suite of subsystems constituting the airborne system. The dual-mode Reconnaissance Management System allows the pilot to select automatic or manual modes of operation. A user-friendly Pilot Vehicle Interface is designed and implemented to ensure that all vital information remains available to the pilot for controlling and monitoring the system during his entire mission.

The Ground System

The tactical ground station utilizes COTS hardware and software to ensure a proven track record and low life-cycle costs. Both primary and secondary standard image formats are embedded in the ground exploitation station, as well as NATO standards for reporting, datalink, library interface, and tape formats.

Electronics Manufacturing and Service

Terma's electronics manufacturing and service capabilities are perfectly geared to match demanding customers' needs for specialized co-production of high quality, high mix, and complexity series in small or medium volumes.

Terma's state-of-the-art manufacturing facilities are backed by comprehensive test capabilities in addition to modern facilities for maintenance and servicing of electronics systems, including certified Clean Room facilities. Manufacturing services include full program management support, material procurement, Quality Assurance, and process and test engineering. Terma also performs a broad and diverse range of tasks pertaining to service, maintenance and updating of electronic equipment. Furthermore, the Configuration Management System established has enabled Terma to control and produce directly from customer documentation.

Quality First

Terma's electronics manufacturing and service comply with stringent space, military and commercial aerospace standards. The Quality Management System is certified in accordance with NATO AQAP-110 Quality Assurance Requirements for Design, Development and Production, and is based on ISO 9001.
At Terma, quality is further assured by the company's uncompromising priority on recurrent training; operators are trained to perform specific processes and certified in accordance with customer and industrial standards.

International Participation

For more than four decades, Terma has participated actively in major international military programs. This experience has generated extensive and invaluable expertise within project management, configuration management and quality assurance. Among the successful international programs with Terma participation are the SeaSparrow, the F-16, AWACS, HAWK, and several space programs.

Electronics manufacturing area

Service and maintenance

SeaSparrow

AWACS, Airborne Warning and Control System

NATO OTAN

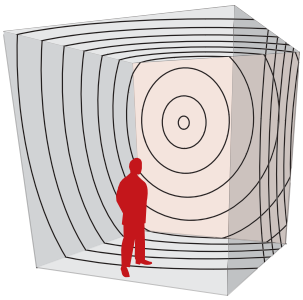
Audio Systems

Terma has taken the lead in offering audio solutions to complement and further refine existing capabilities within cockpit information management. 3-D, or bi-neuralic capability, active noise reduction, and tailored pilot ear-sets are now making headway in military aviation – with a market among commercial airlines soon to emerge as well.

3-D Audio

To the pilot, a 3-D audio system generates a virtual "auditive room" in and outside the cockpit by the perceived localization through a computer of individual audio sources providing operational information. As a result, response time is reduced by the use of 3-D audio systems, generating potentials for the pilot to focus on flying his aircraft, and improved conditions for intelligent response to threats and operational challenges.

Early test results have been so convincing as to warrant the implementation of 3-D audio systems in the upcoming US fighter program, the Joint Strike Fighter.



Invisio Aviation Headset

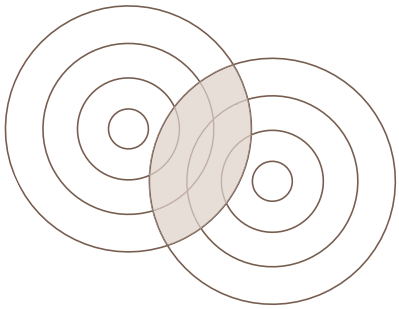
Another "first" by Terma Audio Systems is the introduction of a new concept in pilot headsets - the Invisio Aviation Headset.

The Invisio Aviation Headset is custom-moulded to be inserted directly into the individual pilot's ears. Also included in the ultra-lightweight design concept is an integrated pick-up microphone and loudspeaker – easy to apply, comfortable to wear, and producing a superb quality of sound.

The Invisio Aviation Headset has been tested by several airlines, resulting in a very positive assessment warranting a promising future in the commercial aerospace market as well.

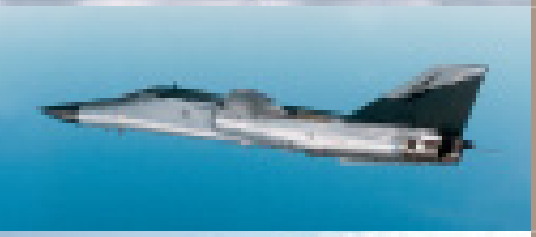
Active Noise Reduction

Terma has been actively researching new technologies for reducing cockpit noise as perceived by the pilots. The result is the successful development of an active noise reduction system comprising sensors on the ear cups or helmet to monitor noise generated by the surrounding environment. The net result is a significant reduction of noise – and stress – without loss of the actual intercom audio quality.



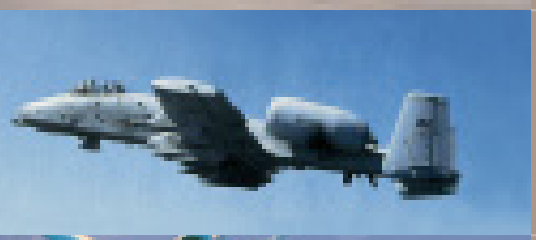
A340

EH-101



F-111

C-160



A-10

Gulfstream business jet, G-IV

JAS-39

C-130

All photos are courtesy of Fototjenesten, Flyvestation Ålborg and Terma.

idworks - 70.155 - 02.2003

TERMA

Terma and Ⓣ are either registered trademarks or trademarks of Terma A/S in Denmark and/or other countries

Terma Airborne Systems is a global provider of advanced aerospace technology for fighters, transport aircraft and helicopters. Dynamic participation in international projects secures access to new ground-breaking technological advances.

Terma A/S
Hovmarken 4
DK - 8520 Lystrup
Denmark
T +45 8743 6000
F +45 8743 6001
terma.hq@terma.com
www.terma.com